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EVALUATION OF THE SOUTHERN PINE BEETLE INFESTATIONS ON THE WINN DISTRICT, KISATCHIE NATIONAL FOREST, LOUISIANA

by

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INTRODUCTION

An aerial photographic survey and subsequent ground evaluation were conducted on the Winn District of the Kisatchie National Forest, Louisiana, during August and September 1974 (Fig. 1). The survey was performed by the Forest Pest Management Group to determine the current status of the southern pine beetle population on this unit.

Southern pine beetle infestations on this District are part of the southwide outbreak involving 10 states. The current outbreak was first observed on this District in the fall of 1971.

METHODS

A 32 percent aerial photographic survey utilizing 800 acre sample plots was performed in accordance with the Southeastern Area guidelines[1/].

A portion of the spots detected during the aerial phase of the evaluation was examined on the ground to determine the cause of mortality, to detect spots that were active and to assess the general conditions of beetle populations.

TECHNICAL INFORMATION

Insect - Southern pine beetle, *Dendroctonus frontalis*, Zimm.

Hosts - The southern pine beetle will attack all species of southern yellow pine, however, loblolly pine, *Pinus taeda*, L., and shortleaf pine, *P. echinata*, Mill., are the preferred hosts.

1/ Evaluating southern pine beetle infestations, 1970. USDA, USFS, SA, S&PF, Div. of FPM, Publication FPM-8, Atlanta, Ga., 35 pp.

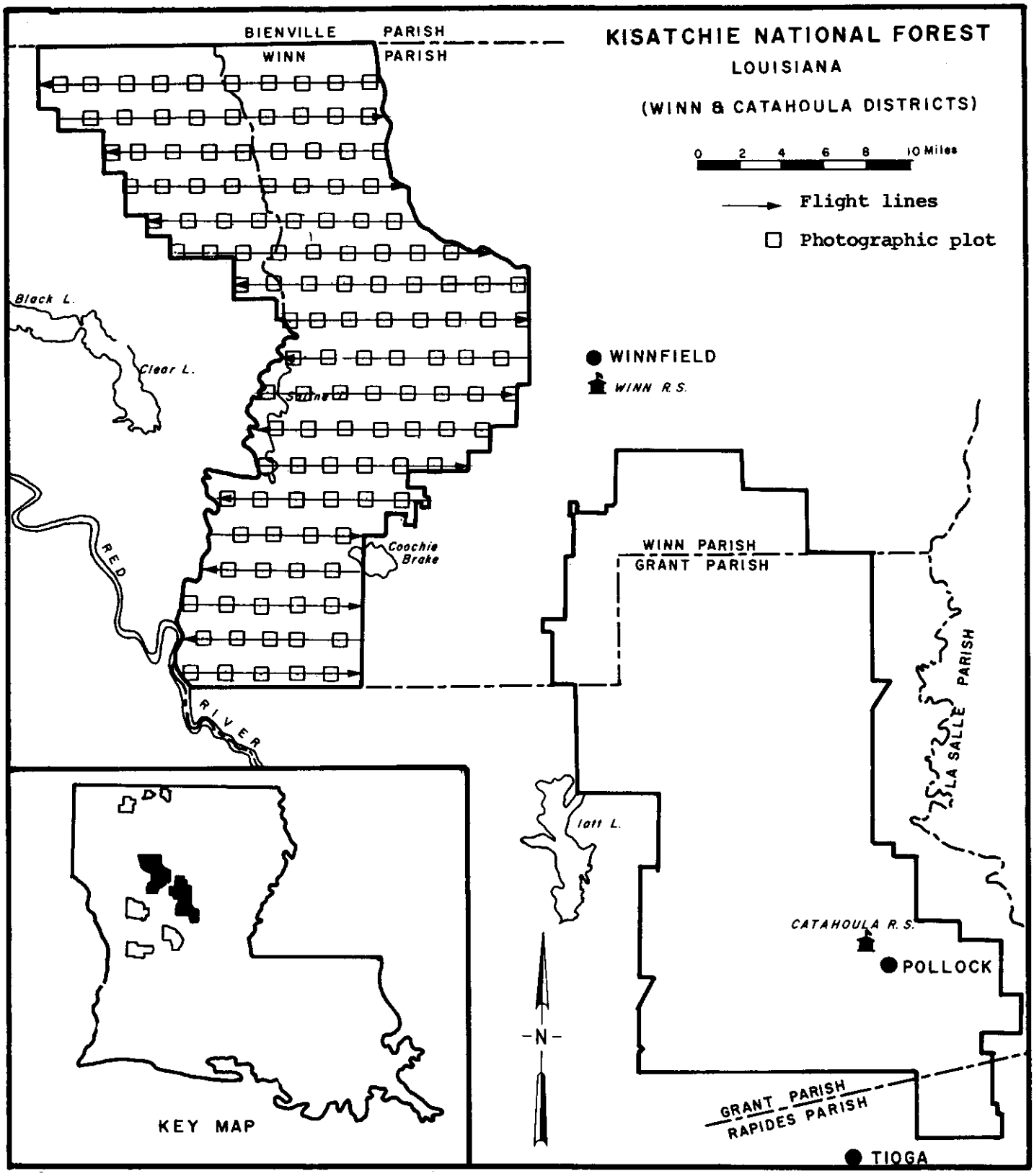

Figure 1. Map showing flight lines and photo plots of aerial photographic survey conducted on the Winn District, August 1974.

Type of Damage - Death of the tree is the result of cambial mining by the southern pine beetle as it constructs its gallery. The beetle also introduces the blue stain fungi, *Ceratocystis* spp., which slows down or blocks conduction of water in the stem.

Life cycle of the beetle - The beetles attack in pairs and construct a winding gallery in the cambial region. Eggs are deposited in niches along the sides of the galleries. The eggs hatch into whitish grubs that further mine the inner bark and then construct cells in the bark for pupation. The callow adults then mine through the bark to emerge. The complete life cycle takes about a month during the summer and as many as seven generations may be produced in a year.

RESULTS AND DISCUSSION

Southern pine beetle populations have increased to moderate levels on the District. This reflects an increase from 0.18 infested trees per M acres during the spring evaluation to 3.26 infested trees per M acres at present (Fig. 2a). The total number of spots on the District has increased from 318 this spring to 1,044 currently (Fig. 2b).

Tables 1 and 2 summarize the results of the evaluation for the District.

Ground examinations revealed that 44 percent of the spots examined were actively infested with southern pine beetles.

RECOMMENDATIONS

In view of the increased southern pine beetle activity on the Winn District during the summer and fall of 1974, it is recommended that Project funds be continued for the second half of FY 1975.

REFERENCES

Terry, J. R. 1972. Evaluation of Southern Pine Beetle Infestations on the Kisatchie National Forest, Louisiana. USDA, Forest Service, SA, S&PF, Forest Pest Management Group, Report No. 73-2-2.

Terry, J. R. et al. 1974. Evaluation of Southern Pine Beetle Infestations on the Kisatchie National Forest, Louisiana. USDA, Forest Service, SA, S&PF, Forest Pest Management Group, Report No. 74-2-10.

Terry, J. R. et al. 1973. Evaluation of Southern Pine Beetle Infestations on the Kisatchie National Forest, Louisiana. USDA, Forest Service, SA, S&PF, Forest Pest Management Group, Report No. 74-2-2.

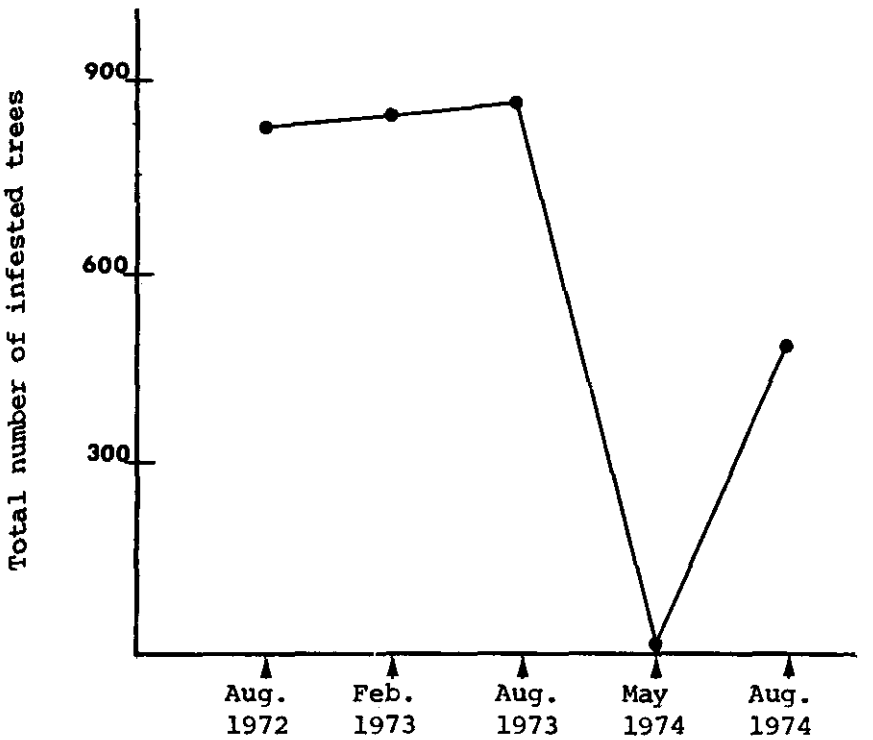

Figure 2a. Illustration of the trend of southern pine beetle infestation levels on the Winn District, Kisatchie N. F., La.

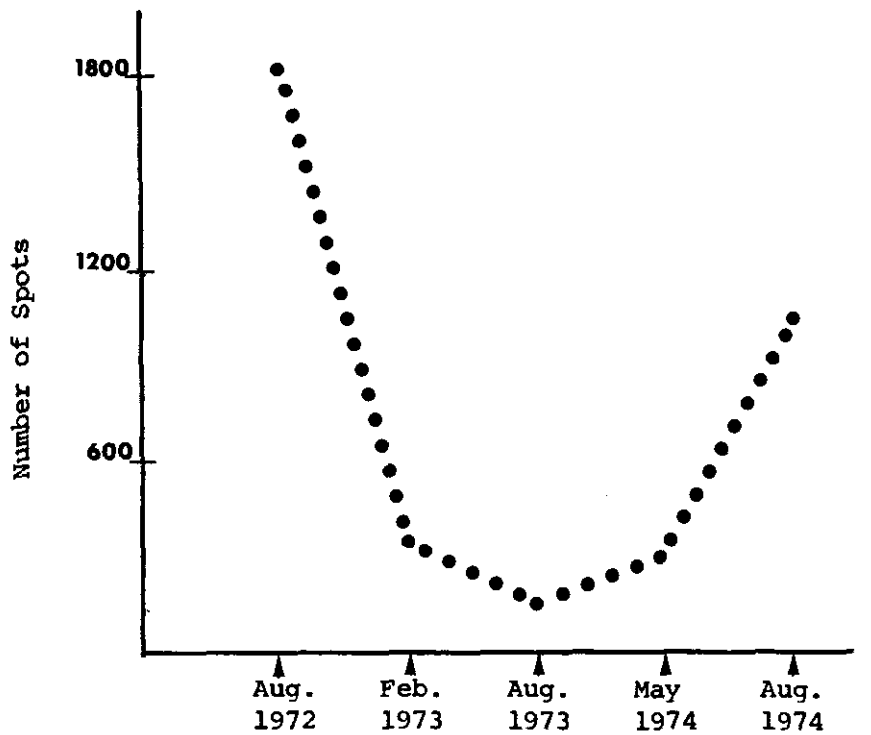

Figure 2b. Illustration of trend of southern pine beetle spots on the Winn District, Kisatchie N. F., La.

Table 1.--Results of Southern Pine Beetle Evaluation on the Winn District, Kisatchie N.F., La., Aug. 1974.

Winn Ranger District, Kisatchie National Forest

1. Results compiled from data collected during the aerial phase of the evaluation

Survey Type	Photographic	
Date of completed photographic survey	Aug. 20	
Percent survey	32	
Total acreage surveyed	290955	
Total susceptible host type acreage	180392	
Total number of spots within survey boundary	1044	
Spots per M acres of host type	5.79	
Average spot size (Trees)	1.51	
Range of spot sizes (Trees)	1 - 30	
Reds and faders per M acres of host type	8.77	

2. Results compiled from data collected during ground and aerial phases of the evaluation

Date of completed ground phase	Sept. 4	
Infested trees per M acres host type	3.26	
Total number of infested trees	588	
Total number of affected[1/] trees	3122	
Infested green to infested red tree ratio	0.0 : 1	
Volume of infested pulp	0	CCF
Volume of infested sawtimber	11.7	MBF
Volume of affected pulp	0	CCF
Volume of affected sawtimber	811.5	MBF
Percent spots active	44%	

1/ Affected means attacked and/or killed.

Table 2.--Summary of aerial survey data - Southern Pine Beetle Evaluation Winn District, Kisatchie N. F., La., August 1974[1/].

	SPOT SIZE (NO. OF TREES)							
	Single	2-5	6-20	21-50	51-100	100+	Total	Average Mult. Tree Spot Size[2/]
Spots	834	178	28	3	0	0	1044	3.57
Trees	834	437	216	94	0	0	1581	

1/ Data expanded to a 100 percent area survey coverage.

2/ Single trees not included.

Terry, J. R., D. H. Wilmore and W. A. Nettles. 1973. Evaluation of Southern Pine Beetle Infestations on the Kisatchie National Forest, Louisiana. USDA, Forest Service, SA, S&PF, Forest Pest Management Group, Report No. 73-2-16.